Kenyon, (Sir) Frederic George

Education, scientific and humane.

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EDUCATION
SCIENTIFIC & HUMANE
A REPORT OF THE PROCEEDINGS OF THE COUNCIL FOR HUMANISTIC STUDIES

EDITED BY
FREDERIC G. KENYON
CHAIRMAN OF THE COUNCIL

LONDON
JOHN MURRAY, ALBEMARLE STREET, W.
1917

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PREFATORY NOTE

THIS pamphlet is issued, at the request of the Council for Humanistic Studies, as a record of its efforts to promote harmony and co-operation in educational reform. So far, the unanimity arrived at relates to the principles, rather than the details, of secondary education; but if these principles are accepted, a considerable amount of unanimity will follow as to the details which arise from them. It may be hoped also that a spirit of harmony will be evoked which will facilitate the discussion of details.

Since its original foundation, the Council has received the adhesion of the Society for the Promotion of Hellenic Studies, the Society for the Promotion of Roman Studies, the Royal Society of Literature, the Royal Geographical Society, and the Royal Historical Society; and representatives of these bodies took part in the conference with the Board of Scientific Societies reported on p. 19.

Inquiries and correspondence with regard to the work of the Council may be addressed to me at the British Museum.

F. G. KENYON.

August 27, 1917.

EDUCATION, SCIENTIFIC AND HUMANE

THE cause of educational reform has suffered much in the past from the rivalry of the advocates of various subjects. The friends of classics or history or natural science or English or modern languages are often not content to exalt the merits of their own subject without disparaging the subjects which compete with their own. The result is that a controversial atmosphere surrounds the whole question, and in such circumstances the discussion tends to fall into the hands of the extremists. The moderate men on either side, who could go far in agreement with one another if they were allowed to discuss the points at issue temperately, are unable to do so because they are alarmed by the extravagant claims of the extremists on the other side. They dare not give an inch because their opponents insist on demanding an ell

Meanwhile the real enemy goes his way almost untouched. The real enemy in this case is the great mass of ill-informed public opinion, which distrusts or despises all education, or measures its value by its immediate money-earning capacity. We do not, as a nation, take long views, and the intangible values of intellectual culture are apt to be underrated. While, therefore, we have many people who believe whole-heartedly in education, they dissipate their strength in fighting one another, and fail to impress the " practical " world around them.

The upheaval of the present war has quite naturally caused many heart-searchings with regard to the efficiency of our national education. Our adversaries, at the outset of the war, claimed to be the possessors of a system of intellectual training which gave them the right to the domination of the world; and their practical efficiency in organisation and industry was demonstrated in both the military and the commercial sphere. Hence we, as a nation, were challenged to consider alike the value of our own intellectual culture and the practical results of our educational system considered in terms of efficiency. According to our usual habits, we took for granted all the strong points of our educational product, and were eloquent in criticism of our deficiencies. A good deal of criticism, some of it justified, some biassed, some merely ignorant, was let loose against our existing educational system; and eighteen months ago we seemed to be doomed to a recrudescence of the old controversies over the comparative value of natural science, of the classics, and of the modern humanities, in which every combatant, like Irishmen at a fair, was prompt to hit any head as it emerged from the turmoil.

The object of the present pamphlet is to record certain attempts that have been made to give a healthier tone to the discussion; to show that a large measure of agreement is possible between the advocates of the several subjects which form the staple of our secondary education; and to bring the weight of this agreement to bear on the solution of the outstanding problems which have been the cause of bitter controversy in the past. No attempt has been made to deal with points of detail, important though points of detail are in this connection. The first and foremost need is to arrive at an agreement upon principles, and to establish a feeling of friendly cooperation in place of mutual suspicion. With good-will much may be accomplished; and the object of this pamphlet, and of the movement which it records, is to promote good-will. How much has been achieved it is impossible to say; but at least it can be emphatically stated that a considerable body of representatives of all the principal subjects of education found themselves able to agree as to the main outlines of secondary education. No one except certain ill-informed extremists really denies the value of any of these principal subjects. The problem is to secure fair play for all, and to give every student, whatever his social standing may be, the opportunity to develop his own aptitudes, and to follow the course for which he is best fitted.

The immediate occasion of the movement here to be described was a letter which appeared in the public Press on February 2nd, 1916, in which the educational claims of natural science were put forward with a zeal which, to some friends of education, scientific as well as humanistic,* seemed to be unnecessarily controversial. This letter was followed by a public meeting on May 3rd, 1916. In order to avert the danger of a false and one-sided impression being made on the public mind, the following letter was sent to the Press on May 4th, 1916. The signatories were intentionally few in number, but were representative of many different professions and interests.

Under the shock and stress of the war, the aims and methods of education have to be considered anew. This reconsideration, in the special conditions of the time, brings with it a risk that we may ignore elements in education vital to the formation and maintenance of national character. A great war in which material means and technical skill are the most obvious factors in deciding the issue, inclines a nation to prize these to the exclusion of forces finally even more important; and if in our reforms we fix our eyes only on material ends, we may foster among ourselves that very spirit against which we are fighting to-day.

At a time when the energies of the nation are necessarily concentrated on other matters, sweeping changes are proposed without their effects being thought out. It is of the utmost importance that our higher education should not become materialistic through too narrow a regard for practical efficiency. Technical knowledge is essential to our industrial prosperity and national safety; but education should be nothing less than a preparation for the whole of life. It should introduce the future citizens of the community, not merely to the physical structure of the world in which they live, but also to the deeper interests and problems of politics, thought, and human life. It should acquaint them, so far as may be, with the capacities and ideals of mankind, as expressed in literature and art, with its ambitions and achievements as recorded in history, and with the nature and laws of the world as interpreted by science, philosophy, and religion. If we neglect physical science, we shall have a very imperfect knowledge of the world around us; but if we ignore or subordinate the other elements of knowledge, we shall cut ourselves off from aspects of life of even greater importance. Even physical science will suffer. Some of its most distinguished representatives have strongly insisted that early specialisation is injurious to the interests they have at heart, and that the best preparation for scientific pursuits is a general training which includes some study of language, literature, and history. Such a training gives width of view and flexibility of intellect. Industry and commerce will be most successfully pursued by men whose education has stimulated their imagination and widened their sympathies.

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* These terms are used for the sake of brevity and in the belief that their connotation is generally understood: "science" or "natural science" dealing with the natural universe and with man as an inmate of it, "humanism" with man as a member of human society. But natural science can be, and should be, studied in a humanistic spirit, and humanistic studies can be, and should be, scientific. Indeed, it is the main object of the movement recorded in this pamphlet to secure this fusion of science and humanism. For the historical meaning of the term "humanism" reference may be made to a paper by Mr. P. S. Allen, than whom no one has a better claim to speak with authority on this subject (Proceedings of Classical Association, xiv. 123-133).

It is our conviction that the nation requires scientific method and a belief in knowledge, even more than physical science, and that the former is by no means identical with the latter. We might enthrone physical science in all our schools without acquiring as a nation what we most need, the persuasion that knowledge is essential to success, and that this knowledge means facts laboriously gathered, wisely selected, and carefully tested. This scientific method is not the peculiar property of physical science; all good work in all studies is based upon it; it is indispensable to law, history, classics, politics, and all branches of knowledge rightly understood. What we want is scientific method in all the branches of an education which will develop human faculty to the highest possible degree.

In this education we believe that the study of Greece and Rome must always have a large part, because our whole civilisation is rooted in the history of these peoples, and without knowledge of them cannot be properly understood. The small city communities of Greece created the intellectual life of Europe. In their literature we find models of thought and expression, and meet the subtle and powerful personalities who originated for Europe all forms of poetry, history, and philosophy, and even physical science itself, no less than the ideal of freedom and the conception of a self-governing democracy; while the student is introduced to the great problems of thought and life at their springs, before he follows them through the wider but more confused currents of the modern world. Nor can it be right that the educated citizens of a great empire should remain ignorant of the first State that met the problem of uniting in a contented and prosperous commonwealth nations differing in race, temper, and culture, and which has left so deep a mark on the language, law, and political conceptions of Europe. Some knowledge of Latin is indispensable for the intelligent study of any one of these things, and even for the intelligent use of our own language. Greece and Rome afford us unique instances, the one of creative and critical intelligence, the other of constructive statesmanship. Nor can we afford to neglect the noble precepts and shining examples of patriotism with which their history abounds.

In urging this, we do not commit ourselves to defending the present system of classical education in all its details. Still less do we claim for it any artificial privilege. We cordially sympathise with the desire to strengthen the teaching of modern history, of modern languages, and of the literature of our own country. Further, we fully accept the importance of promoting scientific research, or extending scientific instruction in schools where it is still inadequately provided, and of improving the quality of science teaching; and we desire to co-operate with the representatives of these studies in ensuring them a due place in our national education. At the same time we would point out that much criticism of our schools seems directed against a past state of things, and ignores reforms which have been already effected. It is sometimes forgotten that the teaching of physical science is compulsory in all State-aided secondary schools, that of Latin, and of course of Greek, in none.

(Signed) Bryce.
J. B. Bury.
Randall Cantuar.
Cromer.
Curzon of Kedleston.
Alfred Dale.
F. W. Dyson.
Esher.
H. A. L. Fisher.
Edward Fry.
A. Geikie.
Alfred Hopkinson.
F. Huth Jackson.
Frederic G. Kenyon.
Horace Lamb.
Walter Leaf.
Donald MacAlister.
Gilbert Murray.
W. Osler.
C. Oxon.
W. Ridgeway.
E. H. Seymour.
G. O. Trevelyan.

(Professor W. Bateson was willing to add his signature as in general agreement, provided that natural science be first recognised as an indispensable part of Secondary Education.)

Meanwhile a movement had been begun with the object of securing co-operation between the principal organisations in England representing humanistic studies in their educational aspects. On the proposal of the Historical Association a Conference was held on June 17th, 1916, between representatives of the Classical, English, Geographical, Historical, and Modern Language Associations, under the chairmanship of Professor T. F. Tout. At this meeting the note of co-operation, both between the several humanistic subjects and between these and natural science, was struck, and the Conference arrived at the following resolutions, which were eventually published in the Press at the end of August, 1916, and were communicated to various educational authorities and societies throughout the country.

31*st August*, 1916.

The following resolutions, drawn up by a Conference representative of the five associations concerned, have received the approval of the Councils of the Classical, English, Geographical, Historical, and Modern Language Associations. They are intended to form a basis for common action by the five associations, as well as, it is hoped, for co-operation with representatives of the mathematical and natural sciences and of other elements in education. It must, therefore, be understood that they do not represent the full views of the associations concerned, but rather a common measure of their views, which they all accept as a basis. In the same way the propositions laid down do not profess to cover the whole field of education, but are limited to the spheres with which the five associations directly deal. Some apology, moreover, seems needed for the use of such contrasted terms as "humanistic" and "scientific." They are simply employed for the sake of brevity, for all would agree that "humanistic" studies should be scientific, and "scientific" studies humane.

The resolutions are now published in the hope that in any coming reconstruction of our educational system this attempt to restate the "humanistic" position will mitigate the dangers incident to a violent breach of tradition and an excessive reaction against the past predominance of certain types of study.

It will be obvious that they are drawn up in no spirit of hostility or indifference to either scientific or technical studies. Their framers are anxious to co-operate in securing for these, as well as for the studies in which they are themselves more particularly interested, their due place in a national system of education.

Pending the formation of some central council, which could assume a larger responsibility and speak with a wider representative authority, they would welcome offers of co-operation or suggestions for the further practical development of the position taken in these resolutions.

The resolutions are as follows: That in the opinion of the Conference—

(i.) It is essential that any reorganisation of our educational system should make adequate provision for both humanistic and scientific studies.

(ii.) Premature specialisation on any one particular group of studies, whether humanistic or scientific, to the exclusion of all others, is a serious danger, not only to education generally, but to the studies concerned.

(iii.) Humanistic education implies the adequate study of language and literature, geography, and history, which in each case should, at the appropriate stage of education, go beyond the pupils' own language and country.

(iv.) The representatives of humanistic studies would welcome from the representatives of the mathematical and natural sciences a statement with regard to those studies similar to that contained in (iii.).

(v.) In all reform of education it must never be forgotten that the first object is the training of human beings in mind and character, as citizens of a free country, and that any technical preparation of boys and girls for a particular profession, occupation, or work must be consistent with this principle.

(vi.) Subject to the above principles the associations concerned would welcome a comprehensive revision of national education from the point of view of present needs.

(Signed)

Bryce. Frederic G. Kenyon.	On behalf of the Classical Association.
Cromer. John Buchan.	On behalf of the English Association.
Douglas W. Freshfield. H. J. Mackinder.	On behalf of the Geographical Association.
C. H. Firth. T. F. Tout.	On behalf of the Historical Association.
Edmund Gosse. Herbert Warren.	On behalf of the Modern Language Association.

These resolutions elicited a large amount of sympathy and adhesion from the societies and individuals to whom they were addressed. Such sympathy and adhesion were not confined to the representatives of humanistic studies. It will be of interest to append the resolutions passed by two influential Associations representing mathematics and natural science.

November, 1916.

The Teaching Committee of the Mathematical Association concurs with the Councils of the Classical, English, Geographical, Historical, and Modern Language Associations in the view that any reorganisation of our educational system should make adequate provision for both humanistic and scientific studies; that premature specialisation should be avoided; and that technical preparation for a particular profession should be conceived in such a spirit that it misses none of the essentials of a liberal education.

In reply to the invitation of the representative Conference to make a statement as to the position of mathematical studies in schools, the Mathematical Association Committee would submit that from a school course of mathematics the pupil should acquire—(1) an elementary knowledge of the properties of number and space; (2) a certain command of the methods by which such knowledge is reached and established, together with facility in applying mathematical knowledge to the problems of the laboratory and the workshop; (3) valuable habits of precise thought and expression; (4) some understanding of the part played by mathematics in industry and the practical arts, as an instrument of discovery in the sciences, and as a means of social organisation and progress; (5) some appreciation of organised abstract thought as one of the highest and most fruitful forms of intellectual activity.

(Signed) A. N. Whitehead
(*President*).
A. W. Siddons
(*Chairman of the Teaching Committee*).
On behalf of the Mathematical Association.

October 17*th*, 1916.

The Committee of the Association of Public School Science Masters are glad to express their cordial agreement with the principles of education stated in the resolutions of the conference representing the Classical, English, Geographical, Historical, and Modern Language Associations. In answer to the invitation to make a statement with regard to education in the natural sciences, they beg to send the following:

Natural science in education should not displace the "humanistic" studies, but should be complementary to them. In this capacity natural science meets two needs in particular:

1. *Search for Truth.*—Imaginative power indicates new fields in which further knowledge of truth may be revealed; its subsequent establishment depends on accurate observation, with constant recourse to nature for confirmation. The one aim of natural science is, in fact, the search for truth based on evidence rather than on authority. Hence the study of the subject implies accurate observation and description and

fosters a love of truth. The special value of natural science in the training of mind and character lies in the fact that the history of the subject is a plain record of the search for truth for its own sake.

2. *Utility.*—There are certain facts and ideas in the world of natural science with which it is essential that every educated man should be familiar. A knowledge of these facts assists men (*a*) to understand how the forces of nature may be employed for the benefit of mankind, (*b*) to appreciate the sequence of cause and effect in governing their own lives, and (*c*) to see things as they really are, and not to distort them into what they may wish them to be. It is the business of natural science in education to bring this knowledge within the range of all.

(Signed) H. H. Turner
(*President*).
Archer Vassall
(*Chairman of Committee*).
On behalf of the Association of Public School Science Masters.

It will be observed that the circular of the Five Associations spoke of the possible formation of "some central council, which could assume a larger responsibility and speak with a wider representative authority." Such a council took form in the course of the autumn of 1916. The British Academy, which represents philological, philosophical, and historical studies in the same sense as the Royal Society represents mathematics and natural science, had already appointed a committee to watch educational developments, with instructions that they should endeavour to enter into communication with the Royal Society, with a view to the possibility of common action. This Committee proposed a conference with the representatives of the Five Associations, which took place at the British Museum on October 13th, 1916. It was then resolved to form, out of the British Academy's Committee and the Conference of the Five Associations, a Council for Humanistic Studies, to which other kindred bodies should be invited to adhere. Viscount Bryce, President of the British Academy, was elected president, and Sir Frederic Kenyon chairman; and it was agreed that an attempt should be made to enter into relations with the similar organisation representing natural science —namely, the Joint Board of Scientific Societies, which had been brought into being through the initiative of the Royal Society, and which had as its president the President of the Royal Society, Sir J. J. Thomson. The policy of the new Council was to be that indicated in the resolutions of the Five Associations.

At this stage an invitation was received, through Professor G. C. Bourne, from another organisation representing natural science, the "Neglect of Science" Committee, formed as the result of the meeting on May 3rd. This invitation led to a Conference between a small number of representatives of the Committee and of the Council for Humanistic Studies on December 8th in the rooms of the Royal Society. Sir E. Ray Lankester was in the chair, and the other members of the "Neglect of Science" Committee were Sir Bryan Donkin, Mr. M. D. Hill, Mr. A. S. E. Ackermann, Dr. A. E. Shipley, and Professor R. A. Gregory. The Council for Humanistic Studies was represented by Sir F. G. Kenyon, Professor T. F. Tout, Mr. J. W. Mackail, Mr. H. J. Mackinder, M.P., and Mr. H. L. Hutton. The "Neglect of Science" Committee put before the Conference the following propositions:

COMMITTEE ON THE NEGLECT OF SCIENCE.

December 1*st*, 1916.

This Committee, in accordance with the Resolutions passed at the meeting on the Neglect of Science held on May 3rd, 1916, desire to make clear the following points:

1. That their essential object is to secure for the teaching of natural science a position of no less importance, as an essential component of a liberal education, than that which is now held by the teaching of languages and history.
2. That, although they make no proposal to displace these subjects from the curriculum of Public Schools,* they recognise that for the attainment of their object

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* *I.e.*, the schools represented at the Headmasters' Conference.

it is necessary that time now spent on the study of Latin and Greek grammar and composition and of Roman and Greek history must be greatly diminished.

3. That it is necessary that the position of a boy, on entering the school and in later years, should no longer be determined mainly, as it is now in many schools, by his proficiency in "classics."

4. That the classical teachers should not be more numerous nor more highly remunerated than those engaged in teaching the natural sciences; in fact, a good Form Master should be able to teach boys both natural sciences and literary subjects.

C. GILBERT BOURNE,
Hon. Secretary.

On the other hand, the Council for Humanistic Studies propounded the resolutions passed by the Conference of the Five Associations (above, pp. 9, 10). A discussion followed in a friendly tone, with every desire on both sides to arrive at a common basis for future action; and in the end the following resolutions were passed unanimously:

1. That in all schools in which education is normally continued up to or beyond the age of sixteen, and in other schools so far as circumstances permit, the curriculum up to about the age of sixteen should be general and not specialised, and that in this curriculum these five groups of subjects should be integrally represented:

(1) Languages, other than English.
(2) English and History.
(3) Mathematics.
(4) Natural Sciences, including Geography.*
(5) Artistic and Manual Training.

(Proposed by Sir FREDERIC KENYON; seconded by Dr. SHIPLEY.)

2. That the representatives of the "Council for Humanistic Studies" be asked to collect the opinion of their constituent Associations as to the proposal of the "Neglect of Science Committee" that the ratio of the elements of a general education up to the age of sixteen expressed in school periods devoted to them be: Languages, 3; English

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* It is understood that geography would also be taught in connection with history.

and History, 3; Mathematics, 2; Natural Sciences and Geography, 3; Artistic and Manual Training, 1. It is understood that the ratio extends over the whole curriculum and is not necessarily that of a single term or school year, and is subject to the proviso expressed in the footnote to Resolution 1.

(Proposed by Professor TOUT; seconded by Dr. SHIPLEY.)

3. That the Committee on the Neglect of Science be asked to prepare a statement as to the aim of the teaching of Natural Science in Secondary Education, and as to the specific subjects (if any) which should be comprised in the curriculum, having regard to the distinction between "Equipment" subjects and those of a more generally educational character.

(Proposed by Mr. MACKINDER; seconded by Sir FREDERIC KENYON.)

The answers of the several associations to the questions put to them in the second and third of these resolutions are of interest, as showing the principal difficulty which the representatives of science and humanism have hitherto encountered in the way of arriving at an agreement. Some of the representatives of science lay great stress on the allocation of a certain proportion of school time to the study of natural science, while they do not consider it practicable to specify the particular branches of the subject which should be included in a general education. The representatives of humanistic studies, on the other hand, consider it more important to determine the subjects which should be dealt with in a school curriculum, regarding the allocation of hours as a matter which must be left to the schoolmasters or governing bodies actually concerned in the work of education.

The answers received were as follows:

(*a*) CLASSICAL ASSOCIATION.

Resolution passed by the Council of the Classical Association, February 10th, 1917, in reply to the request contained in the second resolution passed at the Conference between representatives of the "Neglect of Science" Committee and the Council for Humanistic Studies, December 8th, 1916:

> The Council of the Classical Association, while agreeing that more time should be devoted to natural science in many schools of the older type, are not prepared to accept the time-table put forward by the "Neglect of Science" Committee. They consider it a grave mistake to attempt to bind educational authorities to a fixed allotment of school hours. They consider, further, the suggested grouping of subjects to be unscientific; and while the time allotted to classics (which appear only as part of a group including modern languages) is manifestly too little, in view of their difficulty, the time allotted to natural science is largely in excess of that contemplated in the specimen curriculum put forward by the Association of Public School Science Masters.
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> The Council are of opinion that real assistance can be given to schoolmasters by the Associations representing various branches of knowledge, by indicating the spirit in which their several subjects should be studied, and what particular portions of them should be included in the curricula of Secondary Schools, whether in their general or their more specialised stage; but they think it is not within their legitimate sphere of action to prepare time-tables or to prescribe allowances of hours, especially with regard to subjects other than their own.

(*b*) The English Association.

March 2nd, 1917.

Dear Sir,

The Executive Committee, at their last meeting, had under consideration your request that they should express their opinion on the question of the distribution of a 36 hours' time-table into 9 hours for science, 9 for English, 9 for other languages, 6 for mathematics, and 3 for manual training. The committee came to the conclusion that it did not come within their province to lay down any definite allocation of time for the various subjects, and that this must be left to the discretion of the Head Masters and Head Mistresses of the schools.

Yours truly,
A. V. Houghton,
Secretary.

(*c*) THE GEOGRAPHICAL ASSOCIATION.

January 22nd, 1917.

The Council of the Geographical Association have had before them the minutes of a Joint Conference held at the Royal Society on December 8th between representatives of the Council for Humanistic Studies and of the "Neglect of Science" Committee.

The Council of the Geographical Association are agreed that natural science should have an integral place, more important than hitherto, in the time-tables of the schools, but they are opposed to laying down any definite apportionment of hours to subjects. They would prefer a statement of what should be expected of the average boy or girl at the age of sixteen.

In regard to the note which has been added to the first and second resolutions, passed by the Joint Conference, to the effect that geography would also be taught in connection with history, they would direct attention to the statement sent herewith, which they have unanimously adopted, putting forward the aims which teachers of geography have in view.* They feel that it is essential that geography should be taught as a single subject, and should not be divided between the teachers of natural science and history.

H. J. MACKINDER,
Chairman.

(*d*) THE HISTORICAL ASSOCIATION.

March 8th, 1917.

The following resolutions were passed on December 9th last by the Historical Association:

1. That the Historical Association cannot accept as a basis of agreement that five-twelfths of the school time for boys and girls, up to the age of sixteen, should be devoted to natural science and mathematics.

2. That in the opinion of the Council of the Historical Association out of the periods assigned to English not less than three should be given to history alone.

M. B. CURRAN,
Secretary.

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* See p. 27.

(*e*) MODERN LANGUAGE ASSOCIATION.

Statement by Executive Committee on Allocation of Hours to Modern Languages.

April 2nd, 1917.

A Modern Language requires a daily period (*i.e.*, not less than five periods a week) during the first two years; after that four periods is sufficient.

A second language should not be begun till two years after the first is begun.

G. F. BRIDGE,
Hon. Secretary.

(*f*) COMMITTEE ON THE NEGLECT OF SCIENCE.

Aims of the Teaching of Natural Science in Secondary Schools.

As misconception still exists as to what subjects are included in the term "Natural Sciences," it may be well to state that here the term signifies all departments of natural knowledge which depend for their development upon observation and experiment. It comprises, therefore, both the physical and the biological sciences or any branch of them.

Among the aims of the teaching of science as thus defined are—(1) To train the powers of accurate observation of natural facts and phenomena and of clear description of what is observed. (2) To impart a knowledge of the method of experimental enquiry which distinguishes modern science from the philosophy of earlier times, and by which advance is secured. (3) To provide a broad basis of fact as to man's environment and his relation to it. (4) To give an acquaintance with scientific words and ideas now common in progressive life and thought.

Experience shows that when scientific knowledge has been secured by practical work it becomes part of the permanent mental equipment of the pupil. Scientific method can be used in the study of literary, historical, and other subjects; but applied in this way it can never be accepted as providing the same means of training as direct observation and experimental work. By this kind of work the pupil learns to acquire first-hand evidence, and to distinguish between it and information obtained verbally or by reading; for this reason it alone fulfills an essential function in education. But while prime importance must be attached to training in personal observation and experiment, it is essential that there should also be instruction in the broad principles and results of investigation, in order to produce appreciation of the prime importance of natural knowledge to human life and thought. Modern scientific progress is just as much an achievement of thought as any other movement; and no science course is complete which does not present it as a humanistic study in the fullest sense.

It would be most undesirable to specify precisely the subjects which should be studied in a course of instruction in natural science in schools, as a part of general education. It should be sufficient to say that before systematic work is commenced in the laboratory there should usually be a course of observational study intended to direct attention to common facts of earth and sky, animal and plant life, and natural phenomena generally. In addition, a course of practical measurements in connection with the teaching of arithmetic may be best undertaken at this stage. Laboratory work should be begun after the observational course; and at all stages there should be descriptive lessons or reading, especially of a biographical or historical character, covering a much wider field of human scientific activity than can be surveyed from the laboratory bench. A scheme of work which takes account of these broad ideas has been drawn up by members of the Association of Public School Science Masters on the basis of what is actually done in one of the great Public Schools. This syllabus is submitted as suggesting suitable subjects for general courses of science study, but it should be regarded rather as an example than a prescription to be used by all schools.

A further stage in advance was achieved at the Conference which was held on January 26th, 1917, in the rooms of the Royal Society, between the Sub-Committee on Education of the Board of Scientific Societies and the Council for Humanistic Studies.

Sir E. Ray Lankester was in the chair, and the meeting was large and representative. Its object was, as before, to arrive at a basis of mutual understanding which would enable representatives of all branches of education to co-operate in a general educational policy, while leaving them free to advocate the claims of their own particular subjects. Such advocacy, however, it was hoped, would not in future take the form of decrying the claims of competing subjects. The common ideal generally accepted by the representatives of all subjects is a programme which shall ensure that every boy and girl who enters upon a secondary education shall be well grounded in all the principal subjects of a liberal education conducted in a scientific spirit, and shall be enabled to show in what direction his or her special aptitudes (if any) lie. The later stages of school life would then show an increasing specialisation along the lines most congenial to each pupil, without, however, entirely abandoning the study of the other subjects; complete specialisation to be deferred until the University stage.

Such being the general object in view, as was shown in the course of the discussion, the following resolutions were in the end passed unanimously:

> 1. The first object in education is the training of human beings in mind and character, as citizens of a free country, and any technical preparation of boys and girls for a particular profession, occupation, or work must be consistent with this principle.
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> 2. In all schools in which education is normally continued up to or beyond the age of sixteen, and in other schools so far as circumstances permit, the curriculum up to about the age of sixteen should be general and not specialised; and in this curriculum there should be integrally represented English (language and literature), Languages and Literatures other than English, History, Geography, Mathematics, Natural Sciences, Art and Manual Training.
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> 3. In the opinion of this Conference, both natural science and literary subjects should be taught to all pupils below the age of sixteen.
>
> 4. In the case of students who stay at school beyond the age of sixteen, specialisation should be gradual and not complete.
>
> 5. In many schools of the older type more time is needed for instruction in natural science; and this time can often

be obtained by economy in the time allotted to classics, without detriment to the interests of classical education.

6. In many other schools more time is needed for instruction in languages, history, and geography; and it is essential, in the interests of sound education, that this time be provided.

7. While it is probably impossible to provide instruction in both Latin and Greek in all Secondary Schools, provision should be made in every area for teaching in these subjects, so that every boy and girl who is qualified to profit from them shall have the opportunity of receiving adequate instruction in them.

It was hoped that these resolutions, which were the result of detailed deliberation on the part of representatives of all the principal subjects of education, might be issued to the world with all the weight which complete unanimity among those who have so often differed in the past would naturally carry. The Executive Committee of the Board of Scientific Societies, however, to whom the report of the Sub-Committee had to be referred, desired to introduce certain amendments. If a further conference had been possible, there should have been little difficulty in arriving at a form of words which would have been accepted by all parties, since the alterations proposed do not affect the substance of the educational policy advocated. The convention, however, of such a conference would have entailed, at this season of the year, a delay of several months, when more than enough delay had occurred already. On the other hand, it would not be fair to the Council for Humanistic Studies to expect them to accept the proposal amendments without discussion. It therefore seems better to publish both versions, the one (that already printed) being that which has been accepted by the Council for Humanistic Studies, while the other is that which has been approved by the Executive Committee of the Board of Scientific Societies. It will be easy for the reader to see the large extent to which unanimity has been achieved, and the small outstanding margin (much of it merely verbal) which still remains to be adjusted.

The amendments affect only three of the resolutions, Nos. 2, 5, and 7. These, in the form approved by the Board of Scientific Societies, run as follows:

> 2. In all schools in which education is normally continued up to or beyond the age of sixteen, and in other schools so far as circumstances permit, the curriculum up to about the age of sixteen should be general and not specialised.
>
> 5. In many schools of the older type more time is needed for instruction in natural science; and this time can often be obtained by economy in the time allotted to classics, with advantage to the best interests of education.
>
> 7. While it is impossible and undesirable to provide instruction in both Latin and Greek in all Secondary Schools, provision should be made in every area for teaching in these subjects.

It is obvious that, in order to carry out the policy indicated in these resolutions (a policy which remains substantially the same in both forms), modifications would be necessary in the entrance and scholarship examinations at the Universities, especially, perhaps, at Oxford and Cambridge. Some debate took place on this subject, but time did not permit of any precise resolutions being arrived at. It is also clear that more than one solution of the problem is possible, and different Universities may try different experiments with the same end in view. The province of a general conference, such as this, is rather to determine the end at which it is desirable to arrive. The means must be considered by those who have practical experience of the mechanism of education.

Although, therefore, the movement recorded in this pamphlet admittedly leaves unsolved some of the most difficult practical problems which confront educational reformers, it is believed that something has been achieved which may lead to good results. It is already a substantial advance that these problems should have been more closely defined, and brought into relation with the general and accepted principles which must control education. It is not a little that the organisations which represent all the principal subjects of education, whether scientific or humanistic, should agree in deprecating early specialisation, and should recognise the importance of opening the doors of all subjects to all pupils, and of facilitating their entrance into the paths most suitable for them. The advocates of natural science will be helped by the unanimous admission that more time must be found for the teaching of their subject at many of the older and more famous schools, and that this time should generally be found at the expense of the classics. The advocates of the classics should welcome the equally unanimous admission that provision should be made in every educational area for the teaching of Greek and Latin. The advocates of the more modern humanistic subjects are supported in their demand for better recognition of their claims wherever they are at present neglected. And all alike deprecate the conduct of education in a commercial spirit, and declare their faith in a liberal education as the foundation for all activities of mind and spirit in a civilised country.

There may—indeed, must—be competition between different subjects, each striving to magnify the benefits which it brings to humanity; but surely there need not be hostility. Each has much to do in improving its own methods. Improvement in methods will bring improvement in results, and with improvement in results will come increase in acceptability. We have to show, to a public not too ready to accept the proposition, that knowledge is power, that spiritual values tell even in a practical world, that you cannot starve the soul without the whole nation suffering loss. This is a policy in which all the friends of education can unite, and in which the very fact of their demonstrated unity will go far towards securing their success.

APPENDIX

THE following documents are appended to the main narrative of this report, in order to illustrate more fully the attitude of some of the societies constituting the Council for Humanistic Studies. They are utterances of the several societies, for which neither the other societies nor the Council as a whole have any responsibility, but which are in harmony with its general policy. The memoranda of the English, Geographical, Historical, and Modern Language Associations were formulated in response to a request from the Council for brief statements of the educational claims of these subjects, similar to those put forward by some of the scientific societies; while a similar purpose is served, in respect of the classics, by the resolutions passed by the Classical Association at its annual meeting in January last, and by the proposals laid by a deputation before the President of the Board of Education in April.

If there are in any of these documents statements to which the advocates of one or another subject might demur, it is believed that they relate only to points of detail, which are within the limits of amicable settlement. It is not to be expected that any subject will secure the full amount of recognition, and the full share of educational time, which its most ardent advocates desire; but if these advocates will learn to look with more sympathetic eyes on the aspirations of their friendly competitors, the whole cause of education in the United Kingdom will be the gainer.

A.—THE PLACE OF ENGLISH IN A REFORMED EDUCATIONAL SYSTEM: A STATEMENT BY THE ENGLISH ASSOCIATION.

The Committee of the English Association had recently a number of questions submitted to them by a Committee sitting at the Board of Education. One of them was "Do you consider that the main purposes of Secondary Education can be attained by a thorough study of English without the study of any foreign language?" To this the Committee of the English Association simply replied, "No." To have answered it in any other way would have been entirely inconsistent with the statement recently drawn up and signed by the representatives of the Association in conjunction with those of the Classical, Historical, Geographical, and Modern Language Associations. That statement, it will be remembered, affirmed that any reorganisation of our educational system should make provision for scientific as well as for humanistic studies, and that humanistic education itself should at the appropriate stage be carried beyond the pupils' own language. There can be no question, therefore, for the English Association of any claim that a complete education can be provided by the study of English without any foreign language.

But the Association does desire to submit that English for an English child occupies an entirely unique educational position. Not only can no education be regarded as complete which does not develop in its pupils the power to understand their own language thoroughly, and to handle it easily, clearly, and effectively both by word of mouth and on paper; but this need is fundamental and primary. The English language is necessarily, for an English boy (and the same, of course, applies equally to girls), the principal medium of his intellectual life. Whatever a boy or an undergraduate studies, whether it be natural science, or history, or philosophy, or language, whatever his ultimate work in life is to be, in every case, or in all but every case, he will have to do his thinking, speaking, and writing in his own language. Both in education and in after life he will always be hampered in doing what he has to do if he does not possess an effective command of his own language.

This, the Association submits, gives the study of English a position apart and a universal claim which cannot be put forward on behalf of any other study. We urge this claim in no merely utilitarian spirit. On the contrary, we urge it mainly on altogether higher grounds. The claim of English on Englishmen rests above all on the fundamental fact that a knowledge of his own language is for every man something like a necessary condition to any free, liberal, or extended activity of the mind.

The Association would therefore suggest that there is need of reform as to the whole position of English studies at Secondary Schools. English should receive the same attention at English schools as French receives at French schools. That is to say, it should have a recognised and considerable place in the curriculum which, at present, it cannot be said to possess. It may not have a right to the first place in order of importance, but it should at least have the first place in order of time, which, except that it is the medium through which reading and writing are taught, is at present by no means always the case.

And this not only in its own interest. Other languages would also be gainers by a reform of this kind. We suggest that much time is now lost owing to the fact that many boys and girls make their first acquaintance with literature through the medium of a foreign language. The first Ode a boy reads, for instance, is an Ode of Horace. The consequence is that in addition to the difficulty of a foreign language he has the difficulty of being without any conception of what a poet is trying to do when he writes an Ode. If he had first read some English Odes, he would have possessed a key to the method and aim of a lyric poet. The same argument applies in a greater or less degree to the value of English as a preparation for the study of French, German, and Italian. A boy who had first learnt through English what literature is would have a great advantage over one who in beginning a foreign poet is often even more ignorant of his art than of his language.

We have not thought it necessary to urge the claim of English as the key to the understanding of a literature which is perhaps as great as that of any nation, ancient or modern. The argument seemed too obvious for mention. We content ourselves with submitting that nothing can be more important for an English boy than a thorough command of the language in which he must all his life think, speak, and write, and that a real knowledge of English literature is not only of the highest value in itself, but makes the approach to other literatures far less difficult than it otherwise would be. For these reasons we urge that the study of English deserves a much more important place in the curriculum of our secondary education than it at present possesses.

B.—RESOLUTIONS PASSED AT THE ANNUAL GENERAL MEETING OF THE ENGLISH ASSOCIATION, JULY, 1917.

The English Association approves the formation of the Council for Humanistic Studies and its co-operation with the Joint Board of Scientific Societies in the task of educational reconstruction: and resolves

(1) That the primary aim in educational reconstruction should be to secure for all classes the training of intelligence and character which befits the citizens of a free and civilised nation.

(2) That this training is concerned both with the thoughts and acts of mankind as recorded in literature and history, and with the laws and processes of nature as ascertained and applied by science.

(3) That in the reorganisation of our national education increased attention should be given—

(*a*) To the study of the English language, a command of which is for an Englishman almost a necessary condition of any free, liberal, or extended activity of the mind; and

(*b*) To the study of English literature, not only as the national literature, but as the only great literature universally accessible to Englishmen, and for Englishmen the best way of approach to the understanding of the literature of other times and peoples.

C.—GEOGRAPHICAL ASSOCIATION.

Statement in Regard to Teaching of Geography.

When teaching geography in schools, we seek to train future citizens to imagine accurately the interaction of human activities and their topographical conditions. As these conditions have been established partly by natural forces and partly by human effort, any discussion of the correlation of various conditions must be both scientific and humanistic. The mind of the citizen must have a topographical background if he is to keep order in the mass of information which he accumulates in the course of his life, and in these days that background must extend over the whole world. Besides giving this necessary mental equipment, we believe that the collection, estimation, and correlation of geographical facts afford a most valuable training in practical judgment as applied to ordinary affairs. For the purpose of encouraging a synthetic attitude of mind towards a definite region, it is necessary that the physical facts borrowed from other sciences, which form the basis of Geography, should not be maintained in water-tight compartments. In other words, geography, for school purposes at any rate, is essentially humanistic in its outlook, and on one side related closely to history, but the assembling of the physical data is a very important part of geographical teaching, and cannot be left to the teachers of other subjects. Experience has shown that the art of geographical correlation depends on specially trained habits of thought.

D.—THE HISTORICAL ASSOCIATION.

Resolution passed at the Annual Meeting on January 13th, 1917.

"The value of historical teaching consists only in part in the information conveyed, although some historical knowledge is an essential element in a liberal education, and absolutely necessary as a preparation for citizenship. It lies chiefly in the training of the pupils to discern through the details the main lines of historical development, and to understand something of the conditions—social, political, moral, intellectual, and economic—that have moulded the present. The study of history, moreover, while making its special appeal to imagination, provides valuable training in the search for truth, in accurate reasoning, in the formation of thoughtful judgment, and in the expression of the results in a clear and attractive form. Throughout the curriculum these aims should be kept in view by the teachers, due regard being paid to the stage the pupils have reached."

E.—MODERN LANGUAGE ASSOCIATION.

Claims of Modern Languages.

1. Foreign Modern Languages form a necessary part of the equipment of searchers after truth in all branches of study. The specialist must be in a position to use the results achieved by research in other countries.

2. These languages are the only means of studying on first-hand evidence the great living races, a knowledge of which has a scientific and practical value. These races form one of the most important elements in the constitution of the world in which we live, and are therefore an important subject of scientific study. Our relations with other races are matters of everyday concern for all in a world where international problems are questions of life and death. Citizens of a free self-governing country cannot delegate a study of these races to a few experts, and a first-hand study is impossible without a knowledge of their languages; without this knowledge successful co-operation and successful competition are alike impossible.

3. For the searchers after truth each language and literature deserves æsthetic as well as scientific investigation. Each contains elements of artistic, intellectual, and moral value. Each is an independent mode of expression. A knowledge of each language, therefore, widens artistic, intellectual, and moral experience. In his investigations the student will have to consider the relation of form and matter to one another; in method he will have the advantage of being able to interrogate the living man as well as the records of the past and present.

F.—THE CLASSICAL ASSOCIATION.

Resolutions passed at the Annual General Meeting at Leeds, January 5th, 1917.

The Classical Association reaffirms the principle that classical studies claim an eminent place in national education; approves the formation of the Council for Humanistic Studies and its co-operation with the Joint Board of Scientific Societies in the task of educational reconstruction; and resolves—

(1) That the primary aim in educational reconstruction should be to secure for all classes the training of intelligence and character which befits the citizens of a free and civilised nation;

(2) That this training is concerned both with the thoughts and acts of mankind as recorded in literature and history and with the laws and processes of nature as ascertained and applied by science;

(3) That the study of the Classics, as essential to any full appreciation of literature and insight into history, and as a valuable aid to the understanding of the present, should be placed within the reach of all who have the capacity to pursue it;

That this Association calls upon the Board of Education and the Local Education Authorities to make such provision for the teaching of Latin and Greek in every local area as will place these studies everywhere within the reach of pupils from all classes of the nation; and empowers the Council to take the necessary measures to urge this policy on the Authorities concerned.

(4) That the just claims of other studies may be met without detriment to the study of the Classics, if all education is based on a true scientific method and pursued in a broadly human spirit;

(5) That premature specialisation in any particular study is contrary to the public advantage, as well as to the best interest of that study itself and of its students.

G.—PROPOSALS LAID BY A DEPUTATION FROM THE CLASSICAL ASSOCIATION BEFORE THE PRESIDENT OF THE BOARD OF EDUCATION, APRIL 27TH, 1917.

The Council of the Classical Association respectfully asks the President of the Board of Education to receive a deputation from them, in order that they may lay before him the following proposals with regard to the provision of such teaching of Latin and Greek in every local area as will place these studies everywhere within reach of pupils from all classes of the nation.

1. That the Board of Education be asked to use its influence and resources towards securing—

> (*a*) That in each area of accessibility for school attendance there should be at least one Secondary School for boys, and one for girls, at which efficient teaching may be provided in both Greek and Latin to a standard enabling pupils of ability to enter a specialised classical course of a high standard in some British University. In order to do so they must under present conditions be fitted to compete with reasonable chance of success for entrance scholarships at the different Universities.
>
> (*b*) That in every area a system should be arranged by which pupils who so desire can be transferred to such schools in the area; and that in the case of the holders of scholarships an additional allowance should be made to cover any increase in the cost of daily attendance where travelling is involved. If more than one local authority is concerned in such an area, a combined scheme should be organised for transferring the tenure of scholarships for this purpose.
>
> (*c*) That, besides the school or schools in which Greek is taught, the number of Secondary Schools maintained or aided by the local Education Authority, which provide teaching in more than one language other than English, should be steadily increased; and if the first language is a modern language, the second language should always be Latin, unless for special reasons Greek were preferred in some particular cases.
>
> (*d*) In the case of pupils who do not pass directly from an elementary into the Classical Secondary School, facilities by means of scholarships for transfer into the Classical School from other Secondary Schools should be provided. The successful working of any such scheme depends upon the general facilities existing in the area (i.) for the transfer of all able pupils from Primary to Secondary Schools at an age early enough to enable them to profit duly by a Secondary Course, and (ii.), for their remaining at school long enough to complete it.

2. That the Board be asked to regard a training in Latin language and literature, and at least some knowledge in the original of the typical parts of Greek litera-

ture, as an important and generally necessary element in the training of all teachers of English Literature above the elementary stage, and to use its influence to encourage the application of this principle in Secondary Schools.

3. Finally, the Classical Association desires to draw the attention of the Board of Education to the existing tendency, by which the education given to the cleverer children who come from the elementary schools bears a different stamp from that given to children of the professional classes, being directed more narrowly to material and industrial well-being and less to the effective study of literature and history.

Among the pupils from the elementary schools will be many who are likely to exercise influence in the public life, both municipal and national, of the coming generation; and in the interest of the whole community it is of high importance that these future leaders of their fellow-citizens should have some knowledge of the past history of mankind, especially of its political institutions and experiments, and should acquire an enduring interest in the ideals of both private and public character, by which the noblest sides of civilisation have been moulded. The Classical Association observes with interest the declaration of the Workers' Educational Association (*Educational Reconstruction*, Recommendation 12):

> " That since the character of British Democracy ultimately depends on the collective wisdom of its adult members, no system of education can be complete that does not promote serious thought and discussion on the fundamental interests and problems of life and society."

The Classical Association believes that this end can be secured only if the same freedom of access to the thought and history of the greatest races of the past as is given to the children of the more privileged classes is also, by a wise system of national education, opened to children from every class of the community.

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